About TAML®

This activator/catalyst known as TAML®, an acronym for *TetraAmido Macrocyclic Ligand,* was formulated from the biochemical elements, C, H, N, O and Fe. Professor Terry Collins and his group at IGOC/CMU claim that the catalyst is non-toxic and can be customized for selective oxidation of various chemicals through the iron-oxo reactive intermediates.

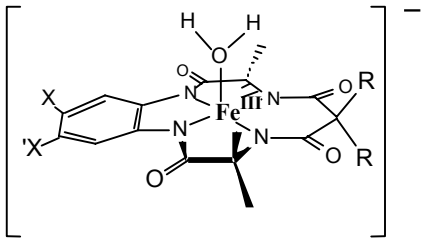

Figure 1: TAML® catalysts

OTA and ATMC have tested the combination of TAML® and hydrogen peroxide on some dyes routinely used by textile and paper mills. Remarkable results for color removal were observed within short time periods during the trials. The economics associated with the technology are also promising.

TAML® is required at low concentrations of about 0.1 to 4 parts per million.

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Carnegie Mellon

About OTA

The Office of Technical Assistance (OTA) is a non-regulatory office within the Executive Office of Environmental Affairs that helps manufacturers and other toxic chemical users reduce or eliminate their use of toxics and generation of hazardous byproducts. OTA provides programs and services to help businesses cut costs, improve chemical use efficiency, and reduce environmental impact. These services are offered to all businesses in the Commonwealth at no cost.

About Carnegie Mellon

The Institute for Green Oxidation Chemistry (IGOC) has been established at Carnegie Mellon University as a research, education and development center. Research carried out in the Institute is focused on the pollution reduction component of green or sustainable chemistry. Research programs are evolving around the scientific and technological development of TAML® hydrogen peroxide activators.

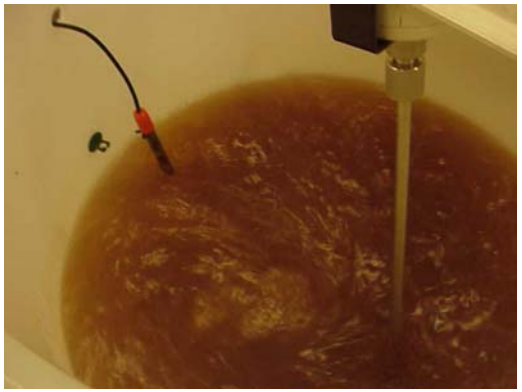
About ATMC

The Advanced Technology and Manufacturing Center of the University of Massachusetts Dartmouth is located in Fall River, MA within a state-of-the-art technology facility. The goal of the ATMC is to provide advanced technology and manufacturing solutions, through industry and university partnerships, to meet current and future business needs.

Advanced Technology & Manufacturing Center

Color Removal With TAML® Activated Hydrogen Peroxide

The Office of Technical Assistance (OTA), in conjunction with the Advanced Technology Manufacturing Center (ATMC) at the University of Massachusetts at Dartmouth applied technology, developed by Carnegie Mellon University (CMU), to remove dye color from wastewater. This TAML® technology can improve water conservation efforts and potentially reduce regulatory burdens at facilities.



OTA and the ATMC developed a module to act as a delivery system for the TAML® catalyst. With this system and technology, industries will be able to reduce operating costs by conserving water, energy and some residual chemicals in their processes.

EXECUTIVE OFFICE of ENVIRONMENTAL AFFAIRS

Mitt Romney, Governor
Kerry Healey, Lt. Governor
Stephen R. Pritchard
Secretary, EOEA
Paul Richard - Director, OTA

The Module

The portable module, developed at the ATMC, is robust and simple to operate. It can be used as a pilot plant test unit for a simple batch or continuous system.

OTA believes that most facilities will require only minimal retrofitting to incorporate the system into most applications.

The module is available at no cost to any industrial facility in the Commonwealth of Massachusetts. An OTA representative will deliver the module to the site and will demonstrate how to operate it. The participating business can keep the module to conduct experiments at no cost until the trials are complete.

How To Get Started

Companies can contact OTA to send samples of colored wastewater or aqueous stream for laboratory assessment.

If the company wishes to proceed to pilot trials, OTA and its collaborators will work with the company for expedited evaluation.

Portable Module

Wastewater Discharge Challenges

Challenges companies face include:

- Loss of large volumes of water
- Loss of valuable residual chemicals in the water
- Loss of energy (as heat) in the spent solutions
- Negative effects of colorants on aquatic life of fauna and flora of rivers and streams
- Increasing cost of treatment of wastewater and POTW fees
- Agencies have regulations forbidding discharges of colored water to surface waters (Massachusetts DEP (314CMR 12.08(1) and USEPA 40CFR 403.5(A1))

TAML® Opportunities

The potential opportunities benefits companies can take advantage of if they use the TAML® technology include:

- Reduced water consumption/Increased water conservation
- Recovery of the chemicals for reuse/pollution prevention
- Energy conservation
- Evaluate new technologies

For More Information please contact:

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